Problems - 4.1 - continued

(8) In class we prove Theorem 4.7 (Power Rule) for positive integers. Use that result, along with the Quotient Rule (Thm. 4.6) to check the Power Rule for negative integers.

(9a) Suppose $f(x) = x^3$ and $x_0 = 2$. Check that the $\eta(h)$ function from Theorem 4.8 is

$$\eta(h) = 6h + h^2$$

(21/22) Evaluate the following two limits (use derivative formulas you know from Calc I, along with l'Hopital's).

$$\lim_{x \to 0} \frac{\tan x - x}{x^3} \qquad \lim_{x \to +\infty} \frac{x^3}{e^x}$$